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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/830,043	04/23/2004	Ji-hun Koo	Q81048	7509
23373 7590 07/21/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037				
EXAMINER SHAPIRO, LEONID				
ART UNIT		PAPER NUMBER		
2629				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/830,043

Applicant(s)

KOO ET AL.

Examiner

Leonid Shapiro

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8, 14-17, 19, 20, 26 and 27 is/are rejected.
- 7) ☒ Claim(s) 6, 9-13, 18, 21-25 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form

the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 14-17,19-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukumoto et al. (6,380,923 B1).

As to claim 14, Fukumoto et al. teaches a 3D-input method for inputting information using a virtual keyboard (fig. 1, col.1, lines 8-15) comprising:

sensing a stroke of a virtual button of the virtual keyboard by a user (fig. 2, items PD1-PD5, col. 2, lines 30-49 and figs 10-11, col. 7, lines 8-46;

sensing positions of the user's fingers relative to the virtual button (in reference – physical surface), and which fingers are used to stroke (col. 2, lines 30-49); and

identifying a stroked key value corresponding to the sensed virtual button, the sensed positions of the fingers and the fingers used to stroke the virtual button (fig. 11, col. 7, lines 57-60).

As to claim 15, Fukumoto et al. teaches the key determination unit outputs the selected key value (fig. 2, items PL1, CH, col. 5, lines 56-60).

As to claims 16-17,19-20 Fukumoto et al. teaches mapping key values to respective predefined virtual buttons and a predefined order of the user's fingers used to select the predefined virtual buttons (fig. 11D).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5,7-8,26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukumoto et al.

As to claim 1, Fukumoto et al. teaches a 3D-input device for inputting information using a virtual keyboard (fig. 1, col.1, lines 8-15), comprising:

a hand position and finger order determination unit that determines which button of a plurality of buttons (in reference – physical surface) of the virtual keyboard is stroked and which fingers are used to stroke the stroked button (fig. 2, items PD1-PD5, col. 2, lines 30-49 and figs 10-11, col. 7, lines 8-46);

a key information unit with values respectively mapped to a predetermined button of the plurality of buttons of the virtual keyboard and fingers used to stroke the predetermined button (fig. 11, from col. 6, line 41 to col. 7, line 3);

a key determination unit that finds a selected key value by matching the stroked button and the fingers used to stroke the stroked button with the predefined button and fingers mapped in the key information storage unit (fig. 11, col. 7, lines 57-60).

Fukumoto et al. does not disclose a key information storage unit that stores key values.

Fukumoto et al. teaches mapping (conversion) look-up table (fig. 11D) and analyzer PL1 and output code CH (fig. 2, items PL1, CH, col. 5, lines 56-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention that a key information storage unit is located in analyzer in order to covert input sensor signal into characters.

As to claim 2, Fukumoto et al. teaches the key determination unit outputs the selected key value (fig. 2, items PL1, CH, col. 5, lines 56-60).

As to claim 3, Fukumoto et al. teaches a sensing device that senses a user's finger movements (fig. 1, items R11-R15); and a signal processing unit that processes a signal output from the sensing device to detect the movement of the user's fingers, wherein the hand position and finger order determination unit utilizes information output by the signal processing unit to determine the selected button and the order of the user's fingers (fig. 2, items PL1, CH, col. 2, lines 30-49).

As to claim 4, Fukumoto et al. teaches the sensing device comprises a plurality of sensors arranged individually on a user's fingers (fig. 1, items R11-R15).

As to claim 5, Fukumoto et al. does not disclose key values are allocated to each of the plurality of buttons of the virtual keyboard based upon the number of sensors.

Fukumoto et al. teaches that for five finger-sensor combination chord pattern has 5 binary bits (fig. 11D).

It would have been obvious to one of ordinary skill in the art at the time of the invention that for smaller number finger-sensor combination (3) chord pattern will have only 3 binary bits and therefore disclose key values are allocated to each of the plurality of buttons of the virtual keyboard based upon the number of sensors.

As to claims 7-8, Fukumoto et al. teaches the virtual buttons are arranged so that the key values are in alphabetical order (fig. 11D).

As to claims 26-27 Fukumoto et al. teaches a soft mapping method and a virtual keyboard comprising a plurality of virtual buttons button (in reference – physical surface) selectable by a user's fingers upon which are mounted a plurality of sensors, the virtual keyboard constructed by mapping key values onto each of the virtual buttons and arranging the virtual buttons according to a predetermined condition (fig. 11D, col. 2, col. 2, lines 30-49) using a method comprising:

mapping the allocated key values onto a first virtual button; and repeating the determining, allocating and mapping for the remaining virtual buttons (figs. 2, 11D col. 2, col. 2, lines 30-49 and col. 7, lines 4-60).

Fukumoto et al. does not disclose determining the number of sensors; allocating key values to the number of sensors.

Fukumoto et al. teaches that for five finger-sensor combination chord pattern has 5 binary bits (fig. 11D).

It would have been obvious to one of ordinary skill in the art at the time of the invention that for smaller number finger-sensor combination (3) chord pattern will have only 3 binary bits and therefore disclose key values are allocated to each of the plurality of buttons of the virtual keyboard based upon the number of sensors.

Allowable Subject Matter

3. Claims 6, 9-13,18,21-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claims 6,18 the major difference between the teaching of the prior art of record (Fukumoto et al.) and the instant invention is that the virtual buttons are arranged so that the key values are ordered by frequency of use.

Relative to claims 9-13,21-25 the major difference between the teaching of the prior art of record (Fukumoto et al.) and the instant invention is that each virtual button comprises two to six key values.

Response to Arguments

4. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 571-272-7683. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

07.15.08
/L. S./
Examiner, Art Unit 2629

/Richard Hjerpe/

Supervisory Patent Examiner, Art Unit 2629